Claims

What is claimed is:

1. Seed of maize inbred line designated PH0GC, representative seed of said line having been deposited under ATCC Accession No. _____.

2. A maize plant, or parts thereof, produced by growing the seed of claim 1.

3. The maize plant of claim 2, wherein said plant is male sterile.

4. A tissue culture of regenerable cells from the plant of claim 2.

5. A tissue culture according to claim 4, the cells or protoplasts being from a tissue selected from the group consisting of leaves, pollen, embryos, roots, root tips, anthers, silks, flowers, kernels, ears, cobs, husks, and stalks.

6. A maize plant regenerated from the tissue culture of claim 4, capable of expressing all the morphological and physiological characteristics of inbred line PH0GC, representative seed of which have been deposited under ATCC Accession No. _____.

7. A method for producing a first generation (F_1) hybrid maize seed comprising crossing the plant of claim 2 with a different inbred parent maize plant and harvesting the resultant first generation (F_1) hybrid maize seed.

8. The method of claim 7 wherein the inbred maize plant of claim 2 is the female or male parent.

9. An F_1 hybrid seed produced by crossing the inbred maize plant according to claim 2 with another, different maize plant.

10. An F_1 hybrid plant, or parts thereof, grown from the seed of claim 9.

11. The maize plant, or parts thereof, of claim 2, wherein the plant or parts thereof have been transformed so that its genetic material contains one or more transgenes operably linked to one or more regulatory elements.

12. A method for producing a maize plant that contains in its genetic material one or more transgenes, comprising crossing the maize plant of claim 11 with either a second plant of another maize line, or a non-transformed maize plant of the line PH0GC, so that the genetic material of the progeny that result from the cross contains the transgene(s) operably linked to a regulatory element.

13. Maize plants, or parts thereof, produced by the method of claim 12.

14. A maize plant, or parts thereof, wherein at least one ancestor of said maize plant is the maize plant of claim 2, said maize plant expressing a combination of at least two PH0GC traits selected from the group consisting of: a relative maturity of approximately 70 based on the Comparative Relative Maturity Rating System for harvest

moisture of grain, very early flowering, good flint grain texture, and adapted to Northern Alberta, Canada, Northern Saskatchewan, Canada, Northern Russia, and Siberia.

15. A method for developing a maize plant in a maize plant breeding program using plant breeding techniques, which include employing a maize plant, or its parts, as a source of plant breeding material, comprising: obtaining the maize plant, or its parts, of claim 2 as a source of said breeding material.

16. The maize plant breeding program of claim 15 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

17. A maize plant, or parts thereof, produced by the method of claim 15.

18. The maize plants, or parts thereof, of claim 2, further comprising one or more single gene conversions.

19. The single gene conversion(s) of claim 18, wherein the gene is a dominant allele.

20. The single gene conversion(s) of claim 18, wherein the gene is a recessive allele.

21. A maize plant, or parts thereof, having all the physiological and morphological characteristics of inbred line PH0GC, representative seed of said line having been deposited under ATCC accession No. _____.

22. The maize plant of claim 21, wherein said plant is male sterile.

23. A tissue culture of regenerable cells from the plant of claim 21.

24. A tissue culture according to claim 23, the cells or protoplasts being from a tissue selected from the group consisting of leaves, pollen, embryos, roots, root tips, anthers, silks, flowers, kernels, ears, cobs, husks, and stalks.

25. A maize plant regenerated from the tissue culture of claim 23, capable of expressing all the morphological and physiological characteristics of inbred line PH0GC, representative seed of which have been deposited under ATCC Accession No. _____.

26. A method for producing a first generation (F_1) hybrid maize seed comprising crossing the plant of claim 21 with a different inbred parent maize plant and harvesting the resultant first generation (F_1) hybrid maize seed.

27. The method of claim 26 wherein the inbred maize plant of claim 21 is the female or male parent.

28. An F_1 hybrid seed produced by crossing the inbred maize plant according to claim 21 with another, different maize plant.

29. An F_1 hybrid plant, or parts thereof, grown from the seed of claim 28.

30. The maize plant, or parts thereof, of claim 21, wherein the plant or parts thereof have been transformed so that its genetic material contains one or more transgenes operably linked to one or more regulatory elements.

31. A method for producing a maize plant that contains in its genetic material one or more transgenes, comprising crossing the maize plant of claim 30 with either a second plant of another maize line, or a non-transformed maize plant of the line PH0GC, so that the genetic material of the progeny that result from the cross contains the transgene(s) operably linked to a regulatory element.

32. Maize plants, or parts thereof, produced by the method of claim 31.

33. A maize plant, or parts thereof, wherein at least one ancestor of said maize plant is the maize plant of claim 21, said maize plant expressing a combination of at least two PH0GC traits selected from the group consisting of: a relative maturity of approximately 70 based on the Comparative Relative Maturity Rating System for harvest moisture of grain, very early flowering, good flint grain texture, and adapted to Northern Alberta, Canada, Northern Saskatchewan, Canada, Northern Russia, and Siberia.

34. A method for developing a maize plant in a maize plant breeding program using plant breeding techniques, which include employing a maize plant, or its parts, as a source of plant breeding material, comprising: obtaining the maize plant, or its parts, of claim 21 as a source of said breeding material.

35. The maize plant breeding program of claim 34 wherein plant breeding techniques are selected from the group consisting of: recurrent selection, backcrossing, pedigree breeding, restriction fragment length polymorphism enhanced selection, genetic marker enhanced selection, and transformation.

36. A maize plant, or parts thereof, produced by the method of claim 34.

37. A process for producing inbred PH0GC, representative seed of which have been deposited under ATCC Accession No. _____, comprising:

(a) planting a collection of seed comprising seed of a hybrid, one of whose parents is inbred PH0GC said collection also comprising seed of said inbred;

(b) growing plants from said collection of seed;

(c) identifying said inbred PH0GC plants;

(d) selecting said inbred PH0GC plant; and

(e) controlling pollination in a manner which preserves the homozygosity of said inbred PH0GC plant.

38. The process of claim 37 wherein step (c) comprises identifying plants with decreased vigor.

39. The process of claim 37 wherein step (c) comprises identifying seeds or plants with homozygous genotype.

40. A method for producing a PH0GC-derived maize plant, comprising:

(a) crossing inbred maize line PH0GC, representative seed of said line having been deposited under ATCC Accession No. _____, with a second maize plant to yield progeny maize seed;

(b) growing said progeny maize seed, under plant growth conditions, to yield said PH0GC-derived maize plant.

41. A PH0GC-derived maize plant, or parts thereof, produced by the method of claim 40, said PH0GC-derived maize plant expressing a combination of at least two PH0GC traits selected from the group consisting of: a relative maturity of approximately 70 based on the Comparative Relative Maturity Rating System for harvest moisture of grain, very early flowering, good flint grain texture, and adapted to Northern Alberta, Canada, Northern Saskatchewan, Canada, Northern Russia, and Siberia.

42. The method of claim 40, further comprising:

(c) crossing said PH0GC-derived maize plant with itself or another maize plant to yield additional PH0GC-derived progeny maize seed;

(d) growing said progeny maize seed of step (c) under plant growth conditions, to yield additional PH0GC-derived maize plants;

(e) repeating the crossing and growing steps of (c) and (d) from 0 to 5 times to generate further PH0GC-derived maize plants.

43. A further derived maize plant, or parts thereof, produced by the method of claim 42.

44. The method of claim 40, still further comprising utilizing plant tissue culture methods to derive progeny of said PH0GC-derived maize plant.

45. A PH0GC-derived maize plant, or parts thereof, produced by the method of claim 44, said PH0GC-derived maize plant expressing a combination of at least two PH0GC traits selected from the group consisting of : a relative maturity of approximately

70 based on the Comparative Relative Maturity Rating System for harvest moisture of grain, very early flowering, good flint grain texture, and adapted to Northern Alberta, Canada, Northern Saskatchewan, Canada, Northern Russia, and Siberia.

46. The further PH0GC-derived maize plant, or parts thereof, of claim 43, wherein said further PH0GC-derived maize plant, or parts thereof, express a combination of at least two PH0GC traits selected from the group consisting of: a relative maturity of approximately 70 based on the Comparative Relative Maturity Rating System for harvest moisture of grain, very early flowering, good flint grain texture, and adapted to Northern Alberta, Canada, Northern Saskatchewan, Canada, Northern Russia, and Siberia.

47. The maize plants, or parts thereof, of claim 21, further comprising one or more single gene conversions.

48. The single gene conversion(s) of claim 47, wherein the gene is a dominant allele.

49. The single gene conversion(s) of claim 47, wherein the gene is a recessive allele.